



JENNETTE'S PIER AT NAGS HEAD

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Photo by Ray Matthews

Soundings

By Mark Joyner, Executive Vice President
NC Aquarium Society

When the history books are written, how the oldest fishing pier on the Outer Banks became the newest member of the Aquarium family will make a great story. For now, the new Jennette's Pier at Nags Head speaks for itself, as our cover clearly announces.

Extending a thousand feet into the Atlantic Ocean, this massive concrete structure is not your father's fishing pier, although it somehow manages to feel like it, thanks to its wood decking and benches. The two-story pier house features a large public meeting space upstairs, perfect for groups as well as weddings, while downstairs you'll find colorful marine aquariums, live exhibits and an educational classroom. There's also room for a well-stocked gift shop, food service, bait and tackle, and rod and reel rental – all under one roof.

What really makes Jennette's Pier unique are its three towering wind turbines,

each generating 10kW of power, enough to provide as much as 80 percent of the Pier's energy needs. Solar panels, geothermal heating and cooling, super-efficient usage of water and energy, and stormwater management practices are not only utilized but clearly demonstrated in interpretive panels, along with ongoing ocean research projects.

It's the blend of the old and the new that makes Jennette's Pier such an icon, and it couldn't have come at a better time, as North Carolina's public piers disappear at an alarming rate. As many as 35 wooden piers once dotted our 300-mile coastline. That number has shrunk to fewer than 20, and the threats of storms and development continue to whittle away at the remaining few.

The million-plus visitors who already enjoy the NC Aquariums on Roanoke Island, at Pine Knoll Shores and at Fort Fisher can now add Jennette's Pier to their must-see list and celebrate with us this state-of-the-art addition to the Aquarium family. See you there!

Mark Joyner



Receive timely updates on coming Aquarium activities by signing up for *SEAmail*, our monthly e-newsletter. If you're a member of the Aquarium family, you've already found *SEAmail* in your inbox. Not a member? Not a problem. Visit ncaquariums.com and sign up to have it delivered each month!

AQUARIUM NEWS

NEWS MAGAZINE OF THE NORTH CAROLINA AQUARIUMS

Summer 2011



A handsome nudibranch creeps across the sea floor. These small, shell-less snails are often festooned with exterior gills in the form of frills, plumes or tubes.
Photo by Vlad Pambucol

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Photo by Julie Powers



On the Cover: The new Jennette's Pier at Nags Head reopens in May, complete with a 1,000-foot deck, pier house, classroom, snack bar, tackle shop, live animal exhibits and more! Read about the history of this famous Outer Banks landmark and discover some of its exciting new features, beginning on page 2. Photo by Ray Matthews

Cover Inset: The sleek, clean lines of blue tangs give these fish a sculpted look. Tangs are abundant in warm tropical waters and travel via the Gulf Stream as far north as New York. Inhabitants of shallow reef areas, they feed on marine plants and small crustaceans. Photo by Julie Powers



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Color Photos by Ray Matthews

Jennette's Pier Reemerges

By Joe Malat

The new Jennette's Pier at Nags Head reopens May 21 and promises to be a popular fishing spot for future generations of anglers and families – just as it's been for more than 70 years.

The original pier, completed in 1939, was the vision of Warren Jennette Sr. of Jennette's Fruit Company in Elizabeth City. Jennette's idea was born out of two seemingly unrelated events.

Firstly, the Swedish steamer *Carl Gerhard* sank in the surf in Nags Head in 1929, near what is now milepost marker No. 7. Its deck remained above the water's surface and fishermen rowed out in small boats and fished the wreck until it disappeared years later. Secondly, Jennette Sr. saw an ocean fishing pier in Kure Beach, N.C. Remembering the popularity of locals fishing the *Gerhard* wreck, he recognized the potential for being able to fish in the surf zone: The seed for building an ocean fishing pier was firmly planted.

In 1939, Jennette's son, William, purchased 570 feet of oceanfront property in Nags Head for approximately \$2,000. With the help of his brothers and Va. Dare Salvage & Construction Co., Jennette's Pier was built, extending 740 feet into the ocean and complete with lights for night fishing. The total cost was \$6,000. In just a few years, worms had infested the massive structure, and in 1943 the pier began to crumble into the sea. Further damage was caused by "The Great Atlantic Hurricane" in 1944. The pier was rebuilt in 1947 by Warren Jennette Jr., who purchased it from his brother Bill.

As the Outer Banks grew more widely known as a fishing and vacation



Warren Jennette Sr.

destination, Jennette's became the hub of activity. But, the pier was battered by more storms over the years. In 1960, Hurricane Donna unearthed an old shipwreck and drove it through the middle of the pier, beaching the wreck about 75 yards to the north. The pier was repaired, but in March 1962 a devastating nor'easter known as the Ash Wednesday storm destroyed the pier – leaving only three pilings. Again it was rebuilt and resumed its popularity.

In 1996, the structure received a facelift, which included a new 9,000-square-foot pier house, featuring a 70-seat restaurant, game room and tackle shop. In 2002, it was sold to the NC Aquarium Society. Plans were to develop it into an educational outpost for the Aquariums. But in September 2003, Hurricane Isabel swept the North Carolina coast, knocking out about 540 feet of the pier and practically shutting down an Outer Banks institution. It then became time to rethink the fishing pier concept. The Aquariums took the lead to rebuild Jennette's as an all-concrete, 1000-foot-long, educational ocean pier.

In 1984, 35 fishing piers lined the North Carolina coast from Kitty Hawk to Calabash. Since then, coastal storms, hurricanes and skyrocketing property values have conspired against them. Today, fewer than 20 piers remain.

Plan a visit to Jennette's Pier to experience the novelty of the new and the nostalgia of the past.



Proud anglers show off their drum catch.

DESIGNED GREEN & CLEAN

By Mike Remige, Pier Manager

The new Jennette's Pier is loaded with state-of-the-art "green" technology and innovative designs.

Most prominent are the three elegant Bergey Excel-S wind turbines that spin gracefully above the Pier's long, wooden deck. At maximum output, the turbines can provide as much as 80 percent of the facility's energy. In addition, one of the Pier's shade pavilions is covered in photo-voltaic cells that convert sunlight into electricity, which is stored in a battery bank until needed to power Pier lights at night.



Wind turbines generate electricity.

Besides on-site energy production, the Pier is designed for energy efficiency and resource conservation. A closed-loop, geothermal, HVAC system conditions the pier house. Eighty wells, set 200 feet deep, circulate fluid that returns to the building at a consistent temperature to aid heating in winter and cooling in summer.

Water conservation is of particular interest. Rainwater cisterns provide irrigation, deck wash-down and vehicle cleaning. An on-site wastewater treatment facility returns reclaimed water to the Pier and bathhouse toilets. Together, these two features alone are projected to reduce municipal water use by 60 to 80 percent.

All of these features combined are an important and tangible demonstration of clean energy production and conservation at work.



A bevy of blues makes for a happy angler at old Jennette's Pier in Nags Head.

Fishing through the Seasons...

By Mike Remige, Pier Manager, and Joe Malat

"What's biting today?"
"Whatcha' catchin'?"

Since 1939, some variation of this timeless question has echoed through Jennette's pier house in Nags Head. Depending on the season, the answer can change dramatically.

Traditionally, Outer Banks fishing piers open their doors as winter transitions into spring. As the weather gets more pleasant, days get longer. However, fish movements are triggered by several factors, including water temperature, weather conditions and the amount of daylight available.

Many fish species migrate seasonally along the coast, and piers can temporarily stop or slow them down. Although winter water temperatures can drop below 40 degrees, striped bass prefer cold water and can be found near shore. This makes the long

decks over the surf zone ideal for reeling in a prize catch. As waters warm to 55 degrees, skate, dogfish, and puffers arrive, followed by croakers, sea mullet, bluefish, speckled trout, red drum and gray trout.

Summer's warm, clear waters trigger the arrival of seasonal species, such as Spanish mackerel, spadefish, king mackerel, sheepshead and pompano – fish that prefer water temperatures from 67 to 85 degrees.

Historically, fall has been considered prime pier fishing season, when schools of migrating baitfish swim close to shore, pursued by bluefish, speckled trout and red drum. Anglers line pier railings when spot, croaker and sea mullet are running.

So, remember the old adage: "A bad day of fishing is better than a good day at work!"



A Very Special Venue

By Michele Bunce, Special Events Coordinator

Designed to complement Nags Head's traditional architectural style, Jennette's Pier provides a charming and spectacular oceanfront backdrop for group gatherings. Business meetings, conferences, staff retreats – even dinner receptions, anniversaries, bridal luncheons and weddings become one-of-a-kind events in such a unique setting.

The Pier's second-floor, private reception and meeting area can accommodate up to 175 guests. The generous layout features dramatic, hardwood, cathedral ceilings and a cozy fireplace. A catering kitchen is strategically located for food preparation and easy serving access.

Perhaps the greatest asset is the spacious, wrap-around, covered deck, where guests can settle into rocking chairs and take in the panoramic view of the Atlantic Ocean.

Whether your event takes place once a month, once a year, or once in a lifetime, consider Jennette's Pier for your next memorable occasion. For more information, visit jennettespier.net.



Photo by Kristi Midgette Photography

Pier Hours & Rates

Hours

June 1 to September 30 – 24 hours
October 1 to November 30 – 6 a.m. to midnight
December 1 to March 31 – 8 a.m. to 5 p.m.
April 1 to May 31 – 6 a.m. to midnight

Walk-On

Adults – \$2 Children – \$1 (ages 3 –12)
Aquarium members free

Fishing

Adults – \$12/day
Children – \$6/day (ages 12 & under)
Pin rigs – \$3 additional/day

Fishing Passes

Available for 3 days, 7 days, & annually

Phone: 252-255-1501

Website: jennettespier.net

Expert Angling Advice

Pier fishing has always been a popular pastime and an economical way of bringing home dinner. Like all sports, there are a number of tricks of the trade and Joe Malat knows most of them.

A skilled fisherman with 50-plus years of fishing experience, Joe learned his craft many years ago as a full-time, professional surf fishing guide on the Outer Banks. He specializes in North Carolina's surf, pier and inshore fishing and is also an outdoor writer and photographer. A former director of the Aquarium on Roanoke Island, Joe is the author of "Pier Fishing," "Let's Go Crabbing" and two editions of "Surf Fishing." Here he shares some inside fishing tips.

Q. What's a good rule of thumb for rod length, line and casting weight for pier fishing?

A. Long rods aren't necessary for pier fishing. Pier anglers should look for a 7-foot spinning rod, matched to a reel that will hold about 250 yards of 12-pound test line. Look for a rod with some "backbone" or stiffness that will handle weights up to 2 ounces, but also be capable of hoisting a wildly flopping fish up and over the pier rails.



Cobia

Photo by Emmett Westbrook, FotoFX

Q. What are the advantages of pier fishing?

A. You can fish in the surf zone, close to where waves are breaking on shore, or in deeper water a couple hundred yards off the beach. Many fish, such as pompano, flounder, speckled trout and puppy drum, often feed very close to the beach. Spanish mackerel and bluefish may prefer slightly deeper water.

Q. What times of year are best for catching fish?

A. That's easy, be there when the fish are! Fish movements and feeding patterns are usually dictated by changes in water temperature, wind direction and velocity. Rather than focus on specific months, anglers

should monitor water temps. Many species, such as speckled trout, blue fish, red drum, flounder and sea mullet will show an active interest in feeding when the water hits the mid-50s. These fish can be in the surf from spring through fall. Others, such as pompano and Spanish mackerel, prefer water above 60 degrees. The very best time for surf and pier fishing along the North Carolina coast is fall, from September through November. However, there's no substitute for local knowledge. The best thing to do is visit or stay in touch with the folks at your favorite pier or local tackle shop for the latest info.



Red drum

Q. Does it matter which way the wind's blowing?

A. Generally, I like a bit of a breeze, and I don't mind it blowing in my face. I think the wind often pushes bait and fish close to the beach, within easy reach of anglers. Some species prefer to feed in certain surf and wind conditions. Speckled trout, flounder, Spanish mackerel and pompano like it when the surf is relatively clear and not very rough. Drum, striped bass and bluefish will feed very actively when the ocean is rough as a cob and the wind is



Sheepshead

Photo by Ricki Lipscomb

howling. But there are times when all the conditions are perfect and the fish simply refuse to bite, but that's just fishing. Resourceful fishermen usually have a million excuses as to why the fish don't bite. I know I do.

Q. Why is night fishing best for some fish?

A. At certain times of the year, night fishing can be good for a great variety of fish, such as in summer when the water is very warm, relatively calm and clear. Red drum and striped bass feed very actively at night, often on small baitfish, crabs, sandworms and mole crabs close to shore. Possibly they feel more comfortable in shallow water when it's dark. Small baitfish may feel more comfortable too, and be ready to feed at night when the water temp drops a few degrees and they are less likely to be seen by large predators.



Black sea bass

Photo by Paul Gray

You can pick up copies of Joe's "how-to" books in Aquarium Gift Shops or at Jennette's Pier.

On-site Discoveries

By Mike Remige, Pier Manager

There may be no better place to learn fascinating facts about our marine environment than hovering 25 feet above the Atlantic Ocean on Jennette's Pier at Nags Head. Outfitted with a full-sized classroom, the new 1,000-foot, state-of-the-art, public, educational fishing Pier is uniquely situated to take popular Aquarium educational programs down onto the beach and up to the water's edge.

What would you like to learn? The basics of pier fishing? The fine art of beach-combing? The lifestyles of such interesting visitors as dolphins, whales, sea turtles and shorebirds? At Jennette's you can do all this and much more.

Pier programs can also catch you up on the latest in sustainable design and clean, green, energy-producing technology, as you stand in the shadow of one of three 10kW wind turbines. Drop in on a Pier seminar that highlights relevant scientific research in the area. Sit in on talks that reveal hundreds of years of Outer Banks legends and lore. Or, visit after dark for a stunning view of the night sky and a quick lesson in astronomy. Programs begin soon after the Pier's grand reopening on May 21.

If you and your family would like to show off your fishing skills, sign up for the Pier's *First Annual Family Fishing Tournament* set for Saturday, June 4. Jennette's Pier is all about family, fishing and fun!



Aquarium Names New Director

By Amy Kilgore, Public Relations Coordinator



Peggy Sloan

Photo by Amy Kilgore

The Aquarium at Fort Fisher welcomed a new director in February, but it didn't have to go far to find her.

Peggy Sloan, Aquarium education curator since 2001, assumed the position formerly held by Donna Moffitt, who retired from the state in December after 30 years of service. Sloan has more than 20 years experience in management and education and operations in aquarium and zoo settings.

"I'm excited to be in a position where I can support, promote and contribute to the efforts of our incredibly talented Fort Fisher staff and volunteers," said Sloan. "Together we'll focus on the Aquarium's commitment of conservation education and serving our community."

Sloan serves on numerous boards and committees and has solicited more than \$630,000 in grants and awards for the NC Aquarium Society. One such program is Coastal Champions, a joint partnership with the Aquarium and Time Warner Cable through "Connect a Million Minds." The program provides students with hands-on experience in science, engineering, math and technology relevant to Aquarium operations.

Sloan holds a bachelor's degree in Environmental Science from Stockton State College in New Jersey and a master's degree in Marine Biology from UNC-W. She is noted for her work in expanding school and public programs and increasing community involvement.



Photo by Amy Kilgore

A young bonnethead shark (upper left) rooms with its skate and ray cousins.

Baby Bonnets

By Amy Kilgore, Public Relations Coordinator

Aquarist Marc Neill was doing regular maintenance above the 235,000-gallon *Cape Fear Shoals* exhibit at the Aquarium at Fort Fisher, when he spotted a white blur out of the corner of his eye. He quickly realized it was a baby bonnethead shark and a female was giving birth.

Husbandry and education staffs quickly sprang into action to remove the tiny sharks before they became prey for larger fish. Using dip nets and working above the exhibit, they began scooping out the newborns while divers quickly suited up and jumped in to assist. In all, three baby sharks survived. The mother and offspring were placed in a holding area behind the scenes for monitoring. The newborns were fed a diet of mole crabs and shrimp.

The female bonnethead was added to the exhibit months earlier, but no one knew she was expecting. "We're very excited about the birth and the cute, new additions to our animal population," said Hap Fatzinger, aquarium curator.

"Successful births are a mix of opportunity and quality animal care. As a result, our husbandry staff is very proud of this surprising event, as well as the many other successful births we've had at the Aquarium."

Bonnethead sharks (*Sphyrna tiburo*) are the smallest of the hammerheads, averaging less than 4 feet in length. Common summertime residents to shallow estuaries and nearshore habitats of the Carolinas, they have been observed chasing shrimp onto mud flats, then lunging onto the mud to snatch the stranded prey. It's not uncommon in areas such as Bulls Bay, S.C., to see dozens of bonnetheads on a summer day feeding in shallow waters. As water temperatures begin dropping in early fall, bonnetheads follow the food supply south to warmer climates.

The baby bonnets, now 7 months old, are on display in the *Shadows on the Sand* exhibit on the lower level of the Marine Building.

SPONSOR SUPPORT

Like most Aquarium projects, the many exhibits and programs at Jennette's Pier have been partially funded with private support from the NC Aquarium Society. Major contributors like Dominion NC Power, Pepsi, Cannon Foundation, East Carolina Bank and Kelly's Restaurant have generously supported the project, as have area businesses, including Atlantic Realty, BMH Architects, Black Pelican Catering, Clancy & Theys Construction Company, Outer Banks Visitors Bureau, Resort Realty, St. Andrews Church, Sam & Omie's Restaurant, Southern Shores Realty, Stan White Realty & Construction, Tanger Outlet, The Dunes Restaurant, The Outer Banks Mall and Village Realty.

The Aquariums invite you to create your own unique sponsorship! With your tax-deductible, \$200 contribution, you can Own-A-Plank and select wording and placement of your personalized fish tile in deck boards that line the Pier. List the names of your children, grandchildren, business, or even create a memorial to a loved one. For a contribution of \$1,500, similar recognition fish plaques are available on wooden Pier benches. Learn more about Pier sponsorships and contribute online at jennettespier.net.



Photo by Ray Matthews

Aquariums Share Sustainability Ideas

By Joanne Harcke, Research Conservation Coordinator

The Aquariums brought progressive ideas for saving resources and dollars to the first N.C. Department of Environment and Natural Resources (DENR) Sustainability Conference.

In collaboration with the N.C. Zoo, the Aquariums shared stories of successful projects. The state's three public Aquariums are setting examples for other divisions by collecting rainwater for irrigation and installing wind turbines to generate electricity, such as those at the new Jennette's Pier in Nags Head. The Aquariums also recycle paper, plastic, cardboard, aluminum cans – even monofilament fishing line. Landscaping initiatives include removal of invasive species and construction of rain gardens.

Approximately 200 DENR employees attended the conference, which was broadcast to offices across the state via Webinar. A random drawing for door prizes included complimentary passes to the Aquariums. The lucky winners were excited at the opportunity of getting to see first-hand many of the Aquariums' successful sustainability initiatives.



Tying the Knot at the Aquariums

By Michele Bunce, Special Events Coordinator

The three NC Aquariums were recently voted "Best of Weddings" for 2011 in brides' No. 1 wedding resource magazine, *the knot*. The designation is a guide to top wedding professionals across the country. The publication reaches more than a million engaged couples each year.

The Aquariums offer unique settings and colorful palettes for weddings, receptions, conferences and other special occasions. Event coordinators work closely with hosts to create customized experiences. Rental revenue supports the Aquariums' mission, programs and future development. For more information, visit ncaquariums.com. A rental program is also available at the new Jennette's Pier. For information, visit jennettespier.net.



Photo by Keith Ketchum



Amphibians on the edge

By Brian Dorn, Husbandry Curator

Frogs, toads, salamanders, newts – they're all over the place, right? Unfortunately, these slippery, backyard bug-eaters are not doing well in the wild. Pollution, habitat loss and disease are doing a real number on the world's amphibians. Several species are now extinct, and many more are headed in that direction.

North Carolina has one of the most diverse populations of amphibians in North America. This spring, the Aquarium at Pine Knoll Shores opened *On the Edge*, an exhibit showcasing these secretive animals, with the goal of enlightening visitors about their plight.

Amphibians are a large group of animals that live in or near our valuable aquatic resources and are extremely important to our ecosystems. They help control insect populations and are food sources for many other animals in and around ponds, streams and rivers. They're also known as "environmental indicators," likened to the canaries coal miners released into the mines to detect toxic fumes. Amphibians essentially breathe through their skin and are

quickly affected by pollution in their home waters – an indication of possible environmental problems that could affect humans.

Amphibians around the world are dying because of water pollution and diseases that have gone unchecked. In addition, an animal with compromised health may be unable to breed, compounding the catastrophic effects.

The good news: A worldwide effort to create awareness of the amphibian crisis is already having a positive impact. We can help by simply being aware of where they live and keeping pollution, fertilizer and pesticide run-off from entering our streams and rivers. With everyone's help, we hope to see these amazing animals make a comeback, here and around the globe.



Photo by Claire Aubel

Salamanders are just one of many amphibians being affected by pollution.

Opal Debuts

By Eileen Cicotello, Aquarist

Opal the octopus made her public debut on Valentine's Day at the Aquarium on Roanoke Island. Opal is a common octopus (*Octopus vulgaris*) and an exciting new addition to the *Close Encounters* exhibit.

A local fisherman donated Opal to the Aquarium in September. A quick examination determined the octopus was female, because of the lack of a modified, third right arm that males use to store sperm. The Aquarium staff held a contest to name the new arrival and "Opal" topped the list. Names are sometimes given to Aquarium animals for training and identification purposes.

Opal takes part in training and enrichment programs as a way to build positive relationships with her caretakers. Training also allows aquarists to teach her to participate in her own care. She has learned helpful husbandry behaviors, such as approaching aquarists on cue, recognizing specific shapes and voluntarily swimming into a basket to be weighed. Toys filled with treats



Photo by Leah Reed

Like all octopuses, Opal has excellent vision, a highly-developed nervous system and she's smart!

encourage her to use her eight arms to investigate and display natural behaviors.

To learn more about Opal, and the fascinating behaviors, habits and lifestyles of these shy creatures, request a special presentation for your group or class by calling 252-473-3494 ext. 232.

Newbies Added to Exhibit

By Kristin Clark, Aquarist

My how fast they grow! It was just last September when aquarists at the Aquarium on Roanoke Island discovered new additions to their box turtle collection in the *Wetlands on the Edge* exhibit. To care for the little turtles, they were taken off display and housed behind the scenes, where they feasted on insects, worms, fruits and veggies. After five months of fattening up, the youngsters were ready to be introduced to the Aquarium family.



Photo by Teresa Kelly

Box turtles are largely terrestrial, but often enter water during hot, dry weather.

Their new habitat in *Wetlands on the Edge* features two levels. The newcomers reside on the upper level and the adults on the larger, lower level. The higher elevation serves a dual purpose: to keep the adults from disturbing the newbies and allow visitors a good look at the little guys. A trickling stream feeding a small pool provides a water source for the young turtles.

Year of the Turtle



by Amy Kilgore, Public Relations Coordinator

Turtle conservation groups, in partnership with Partners in Amphibians and Reptiles Conservation's (PARC), have designated 2011 as Year of the Turtle. The Aquarium at Fort Fisher is celebrating by offering "Turtles on the Twos," special turtle programs on the second day of each month.

Turtles are favorite animals at the Aquariums. Activities for "Turtles on the Twos" center on both fresh and saltwater varieties throughout the day. Feedings, live animal encounters, crafts and more are highlights that reveal habits and lifestyles of these reclusive animals.

The United States has more turtle diversity than any other country; however, turtle populations worldwide have declined up to 40 percent. Depending on whether the species is aquatic, semi-aquatic, or terrestrial, these shy reptiles face many threats, including habitat loss, highway and predator mortality, invasive species, disease and climate change. PARC, a partnership dedicated to the conservation of reptiles and amphibians, believes that working together citizens, natural resource managers, scientists and pet- and food-related industries can help ensure long-term survival of turtle species and populations.



Photo by Amy Kilgore

Born at the Aquarium, a baby box turtle dines on meal worms.

Call to Action

By Wendy Cluse, Conservation and Research Coordinator

The Aquarium at Pine Knoll Shores is a partner in the new, web-based, National Geographic project "Global Action Atlas."

The website makes it easy for anyone to search a wide array of conservation and humanitarian efforts, both locally and globally, and provides an opportunity for positive action and support.

To become a partner, the Aquarium completed an application and approval process. The initial venture is the Aquarium's Sea Turtle Awareness Project and efforts to protect these species. Regular updates are required to remain on the site, keeping project leaders motivated toward their goals.

This added exposure will help highlight the Aquariums' mission of conservation and promote action among conservation-minded individuals. Additional projects and inclusion of projects from all three Aquariums will follow.

Want to know how the venture is going? Follow the progress and learn what actions you can take to help sea turtles, or find out how to donate directly to the project. To see the Aquarium project, visit actionatlas.org. Select the conservation heading at the top of the page, then click on Animals and Plants.



Photo by Julie Powers

A Bright Spot for Sea Turtles

By Julie Powers, Public Relations Coordinator

Nimbus, the little white loggerhead at the Aquarium at Pine Knoll Shores, is living up to its name. Defined as a radiant light or shining cloud, Nimbus won out over hundreds of other name suggestions because it seemed fitting for the tiny sea turtle's rare pale coloring.

But as the small reptile enchants visitors, it also serves as a beacon for heightened public interest in sea turtles. The five sea turtle species found in North Carolina waters are endangered or threatened.



Despite complications, little Nimbus was catching up to its peers by the age of 6 months.

Nimbus was brought to the Aquarium for care in early August. Weak and smaller than average, it turned up when a hatched-out Pine Knoll Shores' nest was excavated for baby turtles left behind.

Hampered by a cleft palate, it had to be coaxed into eating. It also lagged behind in growth, but appears to be catching up with other hatchlings of the same age.

A genetic deviation similar to albinism causes Nimbus' unusual coloring. As the turtle has grown,



Photo by Julie Powers

Nimbus made its public debut in the Tidal Waters Gallery turtle nursery.

its nearly white skin and shell have acquired a yellowish tinge in places. The carapace near the tail has turned slightly darker, though still remains much lighter than normal coloring for a loggerhead.

Nimbus is on exhibit in the Tidal Waters Gallery. The turtle is something of a rock star at the Aquarium – especially with visiting school groups. In addition to its advancement of the sea turtle conservation message, Nimbus could become a symbol of individuality. An Aquarium Gift Shop t-shirt for youngsters features Nimbus and the slogan, "Be different."

MIND CONNECTIONS

By Amy Kilgore, Public Relations Coordinator

A dozen area teens gave up their Saturdays to take part in "Connect a Million Minds," a pilot program at the Aquarium at Fort Fisher. Students documented their activities as they gained hands-on experience in science, technology, engineering and math (STEM). The opportunity was made possible by an Aquarium partnership with Time Warner Cable for development of a new Coastal Champions program. Students worked for three six-week periods.

The first six weeks the novices learned the difference between fresh, brackish and salt waters, met some of the Aquarium's resident snakes, conducted habitat studies, performed water quality testing, and

weighed and measured turtles to calculate how much food was needed to keep the animals healthy.

The second six weeks included work with amphibians, jellies, reptiles, fish and sharks. Food preparation and feedings, assisting with the Aquarium's "Scales and Tails" event and observing a dolphin necropsy were highlights. The final six weeks focused on conservation and field exploration, including a canoe trip to Holly Shelter, fishing, and study of a rocky outcrop formation near the Aquarium. In June, three students have the opportunity to continue the Coastal Champions program as paid summer interns.



Students test salinity using a refractometer.

Making Jellies

By Alex Moore, Public Relations Assistant, and Marc Neill, Aquarist

Jellyfish are some of the most curious and puzzling creatures you'll ever encounter. With gelatinous bodies and dangling tentacles, they look like something out of science fiction. So how does a jellyfish reproduce?



Photo by Barbara Buchanan

Sea Nettle

Two to three times a year, thousands of jellies are "born" at the Aquarium at Fort Fisher by manipulating their environment. The method, although complex, is fascinating. From yellow stingrays to sea horses to jellyfish, propagating animals allows the Aquarium to maintain specimens without depleting wild populations. The Aquarium propagates two fairly common jellies; moon jellies (*Aurelia aurita*) and Atlantic sea nettles (*Chrysaora quinquecirrha*).

Adult jellies release sperm and eggs into the water. The eggs fertilize and develop into tiny free-swimming larvae called "planulae." The planulae float about and settle onto a rock, shell, or other hard surface and develop into tiny polyps resembling small anemones. The polyps make genetically identical copies of themselves through an asexual reproductive process called "budding."

Eventually, the polyps completely take over the hard surface.

Over a period of weeks, aquarists slowly lower the water temperature and the polyps begin to "strobilate," a division process that resembles a stack of pancakes. Each pancake is a new larval jellyfish called an "ephyra," and each polyp can produce roughly 12 to 15 new ephyrae. The ephyrae eventually detach and are fed tiny, live, planktonic animals called "rotifers" multiple times a day. The Aquarium also propagates the rotifers. In a few weeks, the ephyrae develop a full bell and begin to look like the jellies we're used to seeing, thus completing the life cycle.

Jellyfish typically live only six months, creating the need for more jellies. The Aquarium maintains more than a thousand jellyfish at the polyp stage, and water temperature changes are conducted whenever the need for new jellies arises. The Aquarium also shares successful jellyfish cultures with other institutions.



Photo by Amy Kilgore

Developing jellies are fed three times daily.



Photo by Charlotte Marsh

Moon Jelly

High-Flying Summer

By Windy Arey-Kent, Education Curator

Beginning Memorial Day weekend, "Winging It: Birds in Flight" soars into its second season at the Aquarium at Pine Knoll Shores. Half-hour performances run daily at 1 p.m. throughout the summer.

Hawks, vultures, pelicans and owls are the program's stars. Their aerial displays delight visitors, as the birds swoop, soar and squawk in the Big Rock Theater. The free-flight program is entertaining while focusing on conservation issues that affect these beautiful animals.

The birds spent the winter molting and preparing for the coming summer season. Their trainers stayed busy creating new scripts and teaching new behaviors.

Having these amazing birds as part of the Aquarium's collection offers a chance to showcase a few of our many feathered friends that rely on healthy habitats and waterways. The program's goal is to raise awareness and provide audiences with information on how everyone can support wild bird populations.



Photo by Julie Powers

Barn Owl

Tickets for *Winging It: Birds in Flight* are \$4 per person, in addition to Aquarium admission. Aquarium membership discounts do not apply. Tickets can be purchased online, or on the day of your visit.



Photo by Brian Dorn

Perhaps waiting to steal a meal, a tree frog hides in the mouth of a pitcher plant.

Pretty as a Pitcher

By Wendy Womble, Conservation Horticulturist

The Aquarium and surrounding grounds at Pine Knoll Shores are home to thousands of unique animal and plant species that exemplify the wonders of North Carolina's natural habitats. A small but spectacular recent addition to the plant collection is the stately pitcher plant, one of several insect-eating species in the carnivorous garden near the bridge at the Aquarium entrance. Aside from their insect-eating diet, pitchers have additional compelling characteristics.



Photo by Emmett Westbrook, Foto FX

Tiny hairs beneath the pitcher plant's hood direct insects into its hollow tube, where victims tumble into digestive juices.

Resembling small vases capped with subtle hoods, pitchers' varying shades of chartreuse, purple, white and green demand attention from both insects and visitors. Some of these unusual plants form a tidy, cabbage-like rosette close to the ground. Others stretch upright nearly 3 feet toward the sun. To add to the splendor, some species flaunt large, showy, downward-turned flowers from April until September.

The distinctive shape and brilliant colors of these plants help snare winged insects and the occasional ant. Once a hapless bug enters the plant's tube beneath the cap, downward-pointing hairs direct it

deeper into the hollow cavity. There, the bug eventually drowns in digestive fluids.

These oddities of the plant community are often found in swampy meadows alongside other insectivorous plants such as Venus fly-traps and sundews, also part of the Aquarium's carnivorous showcase. Many carnivorous plant species are threatened or endangered in our area as development encroaches on their native range. Poachers are also responsible for dwindling numbers. As tempting as it may seem, it is illegal to take any of these beauties from the wild. If owning these little insect-eaters is a must for you, make sure they come from a reputable dealer.

Because carnivorous plants supplement their diet with insects, they can survive in poor, nutrient-deficient soil. They thrive in sandy, wet, acidic areas where many other plants can't exist. They need only a little sunshine, rainwater and the occasional bug. If only everything could be so easy!



Photo by Sherry White

Stately pitchers reach for the sun.

Nature Swap Shop

by Amy Kilgore, Public Relations Coordinator



Whelk egg case

Do you and your family enjoy exploring beaches, forests, marshes and meadows and collecting nature's castoffs? Bones, egg cases, shells, rocks and other finds are considered natural treasures by some. If collecting nature's oddities is a favorite pastime, consider taking part in Nature Swap at the Aquarium at Fort Fisher.

Nature Swap showcases natural objects, such as shark teeth, skulls, shells and other found items. Learn more about your treasure by bringing it to the Aquarium and examining the staff's collection. You'll earn points for your finds and can use the points to trade for other items of interest.



Violet snail

"The Perdues are Aquarium members who bring in their finds each Saturday," says Joanna Zazzali, Aquarium registrar. "It's fun to see what the kids have found from week to week."



Skate egg case

Nature Swap encourages exploring the outdoors, however, collectors are cautioned to do no harm when gathering their treasures. To participate in Nature Swap, your find should be clean and in good condition. A maximum of three items per day is allowed, and you can earn extra points by doing a bit of research on your find.

There are some finds the Aquarium cannot accept: items from Aquarium grounds; bird parts, feathers, eggs, or nests; alligator parts or mounts; live plants; sea turtle parts; and marine mammal parts.



Scotch bonnet

Nature Swap is held on Saturdays and Sundays from 11 a.m. to 3 p.m. across from the *Coquina Outcrop* touch pool. Visit the Aquarium to share and swap your treasures!

Perdue youngsters bring in nature treasures every week.



Photo by Claire Aubel

Triple Your Fun This Summer!

By Leah Reed, Public Relations Assistant

Sink your teeth into shark fun and facts every "Toothy Tuesday" this summer at the Aquarium at Pine Knoll Shores. Special Tuesdays run June 14 through August 9, with activities, programs and shark feedings focusing on these magnificent – and often misunderstood – top predators of the sea.

Can't get enough of these fantastic fish? Visit any day during "Shark Week," July 24–30, for more "fin-filled," shark-themed action.

The Aquarium's ever-popular summer "Family Nights" return on Thursdays and have been taken over by pirates! Put on your eye patch and prepare to have your timbers shivered each Thursday, June 16 through August 11, from 4 to 8 p.m. Ride the wave of high seas hi-jinks and turn your spyglass to the *Queen Anne's Revenge* exhibit for a glimpse into our pirating past. The exhibit represents a shipwreck thought to be the flagship of a pirate fleet once commanded by infamous Blackbeard. Watch for swashbuckling programs in conjunction with the N.C. Maritime Museum, home to 18th century artifacts recovered from the wreck.

Participation in "Family Nights," "Toothy Tuesdays" and "Shark Week" activities are free with Aquarium admission or membership.



Photo by Alex Dunlap



CARING FOR AILING SEA TURTLES

By Larry Warner, Exhibits Curator

This summer visitors to the Aquarium on Roanoke Island can help rehabilitate a sick sea turtle. The new, fun, hands-on *OPERATION: Sea Turtle Rescue* exhibit simulates many of the steps needed to get a sick or injured sea turtle back on its flippers.

These gentle creatures face many threats – from mistaking floating plastic bags for food to "cold-stunning" caused by a dramatic drop in water temperature. The Aquariums have a long history of working with these ancient reptiles. Staff at the Aquarium on Roanoke Island and the local Network for Endangered Sea Turtles (NEST) spend much time and contribute many hours caring for sick turtles. Their efforts are rewarded when they return healthy animals to the sea.

In the new exhibit, visitors are invited to "rescue" a small turtle replica and take their patient to a diagnostic station. There, they are prompted to perform a mock X-ray, blood test and physical exam. The results determine what has affected their turtle. At a nearby rehabilitation station, a video explains what's needed for treatment. Visitors administer the simulated care and place their turtle in a rehabilitation tank. With a successful recovery, their turtle is returned to the sea.

The exhibit's aim is to increase visitor awareness of some of the common yet major threats facing these animals, and the ongoing efforts by agencies, organizations and volunteers to preserve sea turtle populations.

Sea turtles are federally protected by the U.S. Endangered Species Act. Only trained personnel and volunteers affiliated with specially permitted agencies and institutions are authorized to handle or house them. With the exception of nesting, and some species that occasionally come ashore to bask in Australia and Hawaii, sea turtles spend their entire lives in the ocean. Nesting season on North Carolina beaches is May through September; however, nestings may occur as early as April or as late as October. If you come upon a sea turtle in distress, call 252-241-7367.



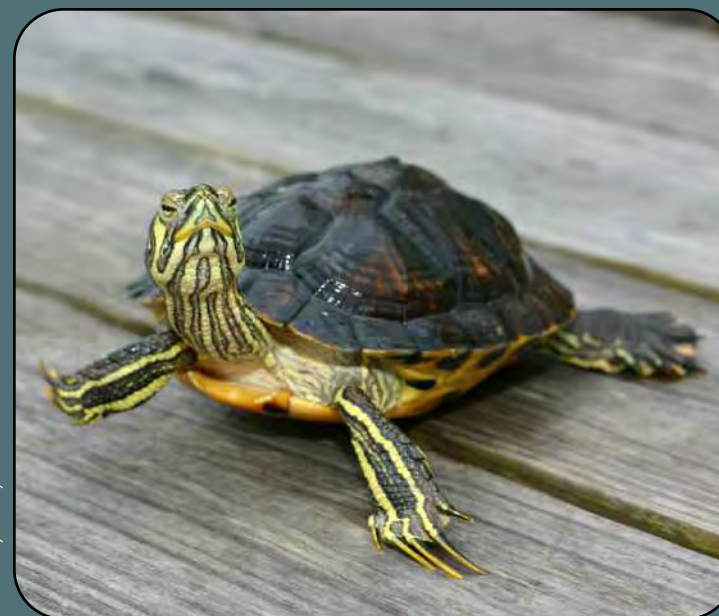
After a collision with a boat propeller, metal sutures and screws hold together a young sea turtle's shell.

Animal Antics

Animals do the darndest things. To catch some of their odd behaviors takes being in the right place at the right time. Here's a humorous look at some of the antics captured by Aquarium staff, volunteers and visitors.



Sand Tiger sigh



Yellowbelly Slider



Loggerhead Sea Turtle (juvenile)

Turtle yoga

No Horsing Around

By Brian Dorn, Husbandry Curator

The *Sea Horses* exhibit at the Aquarium at Pine Knoll Shores recently expanded to showcase a herd of baby sea horses. The youngsters were born behind the scenes in a new propagation program, thanks to much effort by the husbandry staff.

It takes a lot of work to nurture a sea horse brood to adulthood. Aquarists must be vigilant in anticipating when the male sea horse will release its young so they can care for the tiny animals from the start. Newborns are smaller than rice grains when they emerge. After they are collected and placed in the appropriate holding tank, the hard work of feeding and cleaning, feeding and cleaning begins.

At the Aquarium at Pine Knoll Shores, baby sea horses eat only live, baby brine shrimp, which aquarists must hatch out daily. The baby sea horses must be provided with extra helpings to make sure they get enough to eat while learning to hunt. This requires twice-daily tank cleanings so uneaten food doesn't pollute the water. The babies graduate to frozen mysis shrimp after a few months, making cleaning much easier.

But these animals are worth the extra effort. Sea horse populations are declining worldwide. Dried sea horses for the souvenir trade and loss of habitat are two main causes. In North Carolina, sea horses live in saltwater, estuarine wetlands and sea grass beds.

Breeding sea horses for educational exhibits reduces pressure on wild populations, and the expanded exhibit helps spread the word about the need for conservation. The exhibit also features a new video and a display highlighting the slender pipefish, a member of the sea horse family.



Baby sea horses require much care.

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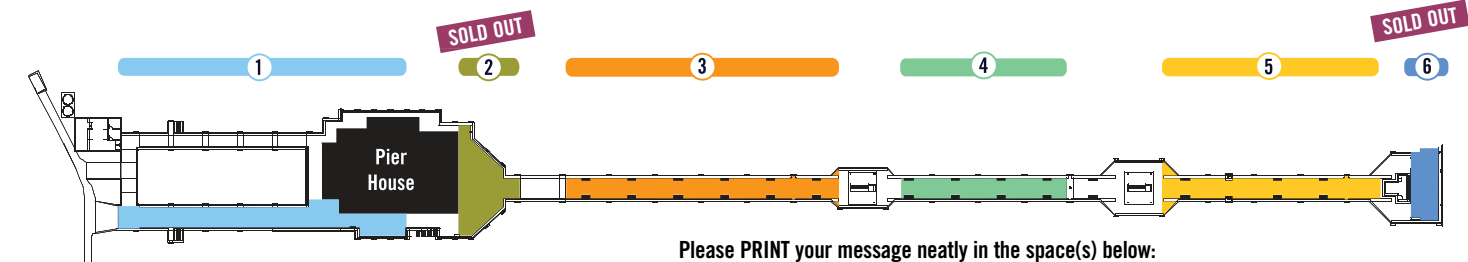
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Additional sponsorship opportunities are available at Jennette's Pier. For more information, contact Jay.Barnes@ncaquariums.com at the Aquarium Development office.



The Pier is divided into six sections from which to choose the location for your Plank. (Sorry, we are unable to guarantee specific bench locations.) Your personalized fish tile may have one, two, or three lines of wording. Prepare your message based on the maximum number of characters available in each line, punctuation and word spaces included. The message on your Plank or Bench will be engraved exactly as you enter it on the form. Please use upper and lower case letters as needed, and be sure all spelling is correct. Please do not use all capital letters.



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The Aquarium Society was recently ranked the top zoo and aquarium nonprofit in the nation and awarded Four Stars for sound fiscal management by the online nonprofit watch group *Charity Navigator*. The Aquarium Society provides support for the Aquariums at Fort Fisher, Pine Knoll Shores, and Roanoke Island.

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The striped burrfish can quickly inhale water to dramatically increase its size. Combined with its body's rigid exterior spines, it becomes a difficult mouthful to swallow. Photo by Karen Doody